



**UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION III
1650 Arch Street
Philadelphia, Pennsylvania 19103-2029**

14 MAY 2010

Colonel Robert D. Peterson
District Engineer
Huntington District
U.S. Army Corps of Engineers
Huntington, West Virginia 25701

Re: PN LRH-2009-17-TUG; Meadow Fork Mining Company, LLC; Powdermill Surface Mine;
Wayne County, West Virginia

Dear Colonel Peterson:

The U.S. Environmental Protection Agency (EPA or Agency) has reviewed the public notice for Meadow Fork Mining Company, LLC's proposed Powdermill Surface Mine located near Fort Gay, Wayne County, West Virginia. The project's proposal involves the placement of fill material into 9,836 linear feet of unnamed tributaries of Powdermill Branch of Tug Fork, near Fort Gay, Wayne County, West Virginia. The project involves the construction, operation, and reclamation of a surface mine operation utilizing contour, point-removal, and highwall auger mining methods. The applicant proposes the construction of five valley fills permanently impacting 4,736 linear feet of intermittent stream and 2,512 feet of ephemeral stream, multiple mine through areas impacting 281 linear feet of intermittent stream and 1,046 linear feet of ephemeral stream, and the construction of three sediment ponds temporarily impacting 996 linear feet of intermittent stream. The applicant is proposing on-site restoration of streams associated with the sediment ponds and mine through areas and off-site rehabilitation of 16,300 feet of perennial Lost Creek.

The project is located in the Lost Creek-Tug Fork Subwatershed (HUC-12) and the Tug Fork Sub Basin (HUC 8). Aerial photography of the area indicates disturbance in the lower areas of Powdermill Branch, but the headwaters appear to be intact forest. The aerial photos also show that the subwatershed has experienced minimal disturbance from surface mining activities. Powdermill Branch has been listed on the State's Clean Water Act Section 303(d) list as biologically impaired and total maximum daily loads (TMDLs) have been developed for manganese, iron, and aluminum. The Tug Fork has also been listed on the State's 303(d) list as impaired and TMDLs have been developed for iron and fecal coliform. According to the applicant Powdermill Branch downstream of the operation is receiving discharges from a non-producing natural gas well with effluent that produces a specific conductivity value of 10,450 umhos, and chloride values at 2,680 mg/L. However, data from the applicant shows that Powdermill Branch approximately 3,000 feet upstream of this discharge has good quality with a West Virginia Stream Condition Index (WVSCI) score of 78.2 and a specific conductivity of 56 umhos. The unnamed tributaries that are proposed to be impacted and the upper sections of



Powdermill Branch may be vital to maintaining the current conditions of downstream sections of the stream by providing clean fresh water dilution to the degraded downstream section of the stream.

EPA's review is based upon the Public Notice for this project and the information contained therein. EPA's review is generally intended to ensure that the proposed project meets the requirements of the Clean Water Act (CWA). The CWA Section 404(b)(1) Guidelines (40 C.F.R. Part 230) provide the substantive environmental criteria against which this application must be considered. Fundamental to the Guidelines is the premise that no discharge of dredged or fill material may be permitted if (1) it causes or contributes, after consideration of disposal site dilution and dispersion, to violations of any applicable state water quality standard; (2) a practicable alternative exists that is less damaging to the aquatic environment; or (3) the nation's waters would be significantly degraded. On April 1, 2010, the U.S. Environmental Protection Agency (EPA) released interim final guidance to the Regional offices titled: *Guidance on Improving EPA Review of Appalachian Surface Coal Mining Operations under the Clean Water Act, National Environmental Policy Act, and the Environmental Justice Executive Order* (SCM Guidance). The SCM Guidance provides a framework for the Regions when they review permits for discharges associated with Appalachian surface mining projects. At the same time, EPA released two Office of Research and Development (ORD) reports: *The Effects of Mountaintop Mines and Valley Fills on Aquatic Ecosystems of the Central Appalachian Coalfields* and *A Field-Based Aquatic Life Benchmark for Conductivity in Central Appalachian Streams* (*Benchmark Conductivity Study*). The ORD reports are being submitted to the EPA Science Advisory Board (SAB) for review and are also publicly available. In the interim, EPA views the reports as providing information, along with published, peer-reviewed scientific literature, that may inform permit reviews.

Alternatives Analysis – 40 CFR 230.10(a)

According to the Section 404(b)(1) Guidelines, only the least environmentally damaging practicable alternative (LEDPA) may be permitted, and to identify the LEDPA, the applicant's alternatives analysis must examine a full range of alternatives that would avoid and minimize impacts to aquatic resources to the maximum extent practicable. The applicant's alternatives analysis has included a range of alternatives including on-site, off-site and appropriate mining methods. The applicant has been able to reduce the number of valley fills from an original seven to the proposed five. EPA appreciates the efforts undertaken to reduce impacts through the alternatives analysis; however, we recommend further evaluation of the project to identify additional opportunities through practicable, modern engineering, mining methods, and materials handling that would further reduce the number of valley fills and extent of streams impacted.

The alternatives analysis provided in the public notice did not discuss alternatives in construction techniques or best management practices to protect water quality and prevent significant degradation of the aquatic ecosystem. The applicant must consider alternate techniques and provide documentation about their use and likely effectiveness in protecting the impacted streams and the downstream receiving waters. As discussed below, water quality impacts are a significant concern, therefore EPA recommends that the applicant address in the alternatives analysis the "sequencing" of the construction of valley fills. In this context, the term "sequencing" refers to construction of one valley fill at a time combined with a demonstration that construction has not caused or contributed to significant degradation and/or an excursion



from applicable water quality standards before the applicant proceeds to construction of the next valley fill.

Compliance with Other Environmental Standards – 40 CFR 230.10(b)/Significant Degradation of the Aquatic Ecosystem – 40 CFR 230.10(c)

40 C.F.R. Section 230.10(b)(1) of the CWA Section 404(b)(1) Guidelines states that “no discharge of dredged or fill material shall be permitted if it causes or contributes, after consideration of disposal site dilution and dispersion, to violation of any applicable State water quality standard.” The Guidelines, at 40 C.F.R. Section 230.10(c) also prohibit any discharge of dredged or fill material which would cause or contribute to significant degradation of the aquatic ecosystem, with special emphasis placed on the persistence and permanence of effects, both individually and cumulatively. EPA is concerned that the applicant has not demonstrated that the project as proposed will comply with Sections 230.10(b) and (c).

The best information available to the Agency, including published, peer-reviewed studies, indicate the activities proposed by the applicant, i.e., surface mining with valley fills in Central Appalachia, are strongly correlated to downstream biological impairment, as indicated by raw taxonomic data, individual metrics that represent important components of the macroinvertebrate assemblage, or when multi-metric indices are considered. These studies show that surface mining impacts on aquatic life are strongly correlated with ionic strength in the Central Appalachian stream networks. Downstream of valley fill overburden disposal sites, specific conductance and component ions can be elevated as much as 20 to 30 times over the background levels observed at un-mined sites. This increase in conductivity impairs aquatic life use, is persistent over time, and cannot be easily mitigated after-the-fact or removed from stream channels. These aquatic life use impairments can rise to a level of significant degradation and/or may result in a violation of West Virginia’s narrative and numeric water quality standards.

Based on the best information available to the Agency and in the absence of site-specific data, conductivity impacts of projects with predicted conductivity values below 300 $\mu\text{S}/\text{cm}$ generally are not likely to cause water quality violations or significant degradation of the aquatic ecosystem, whereas discharges with levels of conductivity above 500 $\mu\text{S}/\text{cm}$ generally are likely to be associated with adverse impacts that could cause or contribute to significant degradation and/or excursions from narrative water quality criteria. EPA recognizes that in certain fact-specific circumstances, instream conductivity levels greater than 500 $\mu\text{S}/\text{cm}$ may not cause adverse impacts to the biological community. To the extent the applicant believes that to be the case with this project, the applicant should supply an analysis of the ionic matrix and whether the discharge is dominated by calcium, magnesium, bicarbonate and sulfate and low in chloride. Where instream background conditions are limestone-dominated, that also should be noted. In addition, the applicant should provide an analysis of whether the native aquatic community is similar to that studied in the *Benchmark Conductivity Study* and in Pond, G.J., M. E. Passmore, F.A. Borsuk, L. Reynolds, and C. J. Rose. 2008, *Downstream effects of mountaintop coal mining: comparing biological conditions using family- and genus-level macroinvertebrate bioassessment tools*, J. N. Am. Benthol. Soc. 27(3):717–737. Any analysis based on differences of the native aquatic community should include a review of taxa (at the genus level) at applicable reference sites within the region.



EPA further recommends that the applicant provide documentation and an upfront demonstration based on the proposed mining techniques, best management practices, or other actions, that the project will not cause or contribute to excursions from applicable water quality standards, including the narrative standard, or to significant degradation. EPA recommends that any permit issued for this project be conditioned to require an adaptive remedial action plan to prevent conductivity levels from rising to levels that may contribute to water quality degradation. Included with this adaptive management plan should be a robust monitoring plan that will adequately assess the effluent and its constituents and include biological sampling. Thresholds need to be established along with a trigger for appropriate responses for remediation. Finally, EPA requests that it be provided with the baseline monitoring data collected for the site and any other pertinent information that is necessary for our review as the project moves through the review and decision process.

Minimization and Compensation for Unavoidable Impacts – 230.10(d)

The applicant has provided a conceptual compensatory mitigation plan to compensate for the proposed impacts to waters of U.S. which includes on-site restoration of 2,588 linear feet of temporary impacts from the sedimentation ponds and off-site rehabilitation of 16,300 linear feet of perennial Lost Creek which is within the same subwatershed (HUC 12 watershed) as the proposed project. EPA suggests that the applicant also consider opportunities that may be available to address the water quality impacts to Powdermill Branch due to the non-producing gas well discharges.

The applicant has assessed the proposed impacted streams using EPA's Rapid Bioassessment Protocol and the Corps of Engineers' (Corps) interim "Functional Assessment Approach for High Gradient Streams in West Virginia". As the compensatory mitigation plan is further developed EPA recommends that the applicant develop and that any permit incorporate an appropriate monitoring plan that includes observable and measureable biological and chemical parameters along with the proposed physical (using EPA's Rapid Bioassessment Protocol scores) parameters as benchmarks for success, i.e., performance standards, along with a timeframe in which the performance standards would reasonably be expected to occur. Finally, an adaptive management plan should also be provided that identifies alternate plans and strategies should the mitigation plan not meet the required performance standards. EPA requests that as this plan is further developed that we have the opportunity to review and provide further comments as appropriate.

Determination of Cumulative Effects on the Aquatic Ecosystem – 230.11(g)

The Section 404(b)(1) Guidelines require consideration of cumulative impacts: "[A]lthough the impact of a particular discharge may constitute a minor change in itself, the cumulative effect of numerous such piecemeal changes can result in a major impairment of the water resources and interfere with the productivity and water quality of the existing aquatic ecosystem." The data provided by the applicant indicates that the streams within the project area are good quality headwaters streams. Headwaters streams are vital components of the aquatic ecosystem. Headwaters streams provide maximum interface with the terrestrial landscape and collectively provide high levels of water quality and quantity, sediment control, nutrients, and organic matter, and as a result, are largely responsible for maintaining the quality of downstream riverine systems. Even though ephemeral and intermittent streams may go dry during a portion of



the year, they perform many of the foregoing functions and continue to provide habitat for macroinvertebrates and amphibians that utilize the interstitial water flows in the substrate below the stream.

In addition, the streams in the project area may be vital to the downstream sections of Powdermill Branch by providing clean freshwater dilution to the impaired stream thus maintaining its current condition. EPA recommends that the Corps conduct a thorough cumulative effects analysis which includes a detailed presentation of past, present and reasonably foreseeable activities. The analysis should describe the current state of the aquatic ecosystem and consider the effects on the human environment including impacts to the subwatershed from the filling of streams that currently provide freshwater dilution and potential impacts to private drinking wells and other drinking water supplies. This analysis should include, at a minimum, the cumulative effects of all reasonably foreseeable activities on water quality, loss of stream function and habitat, and the effects of the hydrologic modifications to the watershed. It should also address the impact of deforestation on water quality, water quantity, and overall ecological conditions within the watershed. These impacts should be compared to the attributes of healthy watersheds in the ecoregion with a goal towards assuring that the watershed within which the project is proposed will not be impacted beyond its current condition. We strongly suggest an approach that would manage and link proposed projects to overall water quality and habitat improvement on a subwatershed basis.

Conclusion

Finally, consistent with Executive Order 12898 entitled "Federal Actions to Address Environmental Justice In Minority Populations and Low-income Populations" and the accompanying Presidential Memorandum, EPA recommends that the Corps' Section 404(b)(1) and NEPA analyses consider impacts to the affected community including impacts to water supplies and fisheries and ensure meaningful increased opportunity for public input regarding potential impacts.

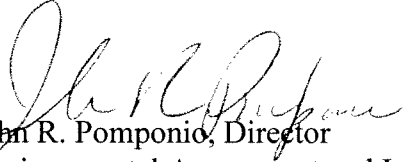
In conclusion, EPA believes that the project as currently proposed may not comply with the Section 404(b)(1) Guidelines, that the project may adversely affect water quality and result in significant degradation to the aquatic ecosystem, and that efforts be considered to address such impacts. In light of these concerns, EPA believes that the project, as proposed, may result in substantial and unacceptable impacts to aquatic resources of national importance, as covered in Part IV, paragraph 3(a), of the 1992 Clean Water Act Section 404(q) Memorandum of Agreement between the Environmental Protection Agency and the Department of the Army. In addition, we believe that this proposal may be a candidate for an Environmental Impact Statement (EIS). As you make your determination whether to prepare an EIS, we recommend that you consider the large scale nature of the proposed project's impacts, e.g., the loss of almost two miles of stream habitats and the construction of five valley fills. In addition, it is not clear that the mitigation proposal, as currently drafted, would serve as a basis for supporting a Finding of No Significant Impact. We would appreciate the opportunity to discuss with you this issue of whether an EIS should be prepared, as well as our other concerns with the permit application.

EPA suggests that the applicant be afforded the opportunity to participate in the monthly meetings that have been established to provide project proponents an opportunity to present their proposed projects to the resource agencies. The applicant should review the April 1, 2010



Guidance to the Regional Offices and indicate how this project is consistent with each applicable section. Should you have any questions please feel free to contact Ms. Jessica Martinsen at 215-814-5144 or by email at martinsen.jessica@epa.gov

Sincerely,



John R. Pomponio, Director
Environmental Assessment and Innovation Division

